

Application no/date: 1989-118294[1989/10/11]
 Date of request for examination: [1989/10/11]
 Accelerated examination ()
 Public disclosure no/date: 1991- 57511 ~~Translate~~ [1991/ 6/ 3]
 Examined publication no/date (old law): 1994- 4083 ~~Translate~~ [1994/ 2/ 2]
 Registration no/date: 2148816[1997/ 8/ 8]
 Examined publication date (present law): []
 PCT application no:
 PCT publication no/date: []
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 IPC: F16B 5/06 F16B 5/02 F16B 21/06
 F16B 37/04
 FI: F16B 19/00 M F16B 37/08 B F16B 5/06 Q
 F16B 5/02 W F16B 37/04 L F16B 21/06 A
 F-Term: 3J036AA03,DA05,3J037AA02,BA02,BB01,BB02,BB03,BB05,BB10,DA02,DA04,DA11,
 DB01,DB03,DC01,DC05,3J001AA01,BA01,BA03,DC03,DD00,EA00,FA02,GB01,HA02,JA08,J
 C03,JC06,KA19,KA21,KB01
 Expanded classification: 221,262
 Fixed keyword:
 Citation:

[07,1994. 4.28,04] (04,JP,Unexamined Utility Model Publication,1989078710)

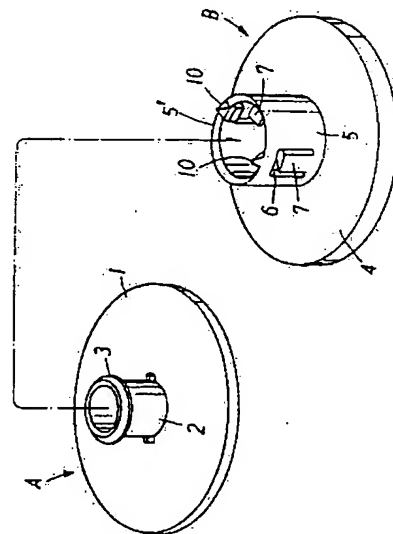
[07,1994. 4.28,04] (04,JP,Unexamined Utility Model Publication,1987136612)

[07,1994. 4.28,04] (04,JP,Unexamined Patent Publication,1987037507)

Title of invention: Attaching clip such as control panel

Abstract: [ABSTRACT]

About clip to install mat and a panel for isolation of sound in car body such as auto, a letter of orbiting projection is established in axis end of male ingredient, because it could turn in axis end side from collar department side of sash in window established in shank of female ingredient, and a tongue was projected, and locking click to lock to shank internal perimeter surface between things of window and axis end in a letter of orbiting projection of male ingredient was projected, stud bolt can fit easily.



Japanese Utility Model Appln. No. H01-118294

1. Title of the device

Clip for Mounting Panel and the Like

2. Claims

1. A clip for mounting a panel and the like comprising; a male member having a flange part with a cylindrical shaft part being integrally disposed on one surface of the flange part; and a female member having a cylindrical shaft part wherein the shaft part of the male member is inserted, one end of the cylindrical shaft part being integrally disposed with a flange part;

wherein a circumferential protrusion is disposed around the outer periphery of the shaft end of the male member, and a window is disposed on the shaft part of the female member, the window having a locking piece being provided from the edge of the window of the flange part side toward the edge of the window of the shaft end side; and

wherein the locking piece is formed as a protrusion in the radial direction, and a locking claw for being locked at the circumferential protrusion of the male member is disposed on the inner surface of the shaft part between the window and the shaft end.

2. The clip for mounting a panel and the like according to Claim 1, wherein the locking piece disposed within the window is made thick in the radial direction of the shaft part over the front width of the protruding direction, and the inner

surface thereof is made as a locking surface.

3. Detailed Description of the Device

[Industrial Applicability]

This device relates to a clip for mounting an acoustical mat or panel to a body of a vehicle and the like.

[Prior Art]

Conventionally, clips for mounting acoustical panels to bodies of vehicles and the like have been provided, as described in Utility Model Publication H01-78710.

The clip described therein comprises a first member A' having a flange 102 for retaining a surface of a panel material at the end of a cylindrical shaft part 101 into which a stud bolt protruding from a body of a vehicle and the like may be inserted, and a second member B' having a flange 106 for retaining a rear surface of the panel material at the end of a shaft part 105 for a spacer, the shaft part 105 may be fit to the shaft part 101 of the first member A' in extrapolated manner. The clip also comprises locking parts 103 and 107 at the ends of fitting sides of the shaft parts 101 and 105, respectively, to be engaged with each other for preventing falling off. The shaft part 101 of the first member A' is formed to have an inner diameter into which the stud bolt may be closely inserted, and a slit 104 is disposed on the peripheral wall of the shaft part 101 in the vertical direction, thereby the diameter of the shaft part 101 may be

elastically decreased. At the end of the shaft part 105 of the second member B' where the retaining flange 106 is disposed, a locking part 108 engaging with the stud bolt is disposed for preventing falling off. The locking part 108 disposed on the flange 106 side of the shaft part 105 of the second member engages the second member B' with the screw part of the stud bolt, while the locking parts 103 and 107 disposed on the shaft parts 101 and 105 of the first and second members A' and B', respectively, are engaged with each other for preventing both the first and second members A' and B' to fall off from each other.

[Problem to be Solved by the Device]

However, in the above described clip, the shaft part 101 of the first member A' bents inwardly to reduce its diameter owing to the slit 104, and thereby inserted into the shaft part 105 of the second member B', so that the locking part 103 may not be fully recovered to the original state when returned by the elasticity. In that case, the locking parts 103 and 107 are not sufficiently engaged with each other, causing the shaft part 101 being difficult to be engaged with the stud bolt.

Additionally, by configuring the shaft part 101 to be easily expanded when contacting with the tip of the stud bolt, the engaging force becomes insufficient.

The object of the present device is to solve the above problems and to provide a clip configured to ensure the

engagement of a pair of male and female members.

[Means for Solving the Problem]

In order to achieve the above described object, the present device is configured to comprise a male member A having a flange part 1 with a cylindrical shaft part 2 being integrally disposed on one surface of the flange part and a female member B having a cylindrical shaft part 5 wherein the shaft part 2 of the male member A is inserted, one end of the cylindrical shaft part 5 being integrally disposed with a flange part 4. The clip is also configured to comprise a circumferential protrusion 3 disposed around the outer periphery of the shaft end of the male member A, a window 6 disposed on the shaft part 5 of the female member B, the window 6 having a locking piece 7 therein from the edge of the window of the flange part 4 side toward the edge of the window of the shaft end 5' side, wherein the locking piece 7 is formed as a protrusion in the radial direction, and a locking claw 8 for being locked at the circumferential protrusion 3 of the male member A is disposed on the inner surface of the shaft part 5 between the window 6 and the shaft end 5'. Additionally, the clip may be configured so that the locking piece 7 disposed within the window 6 is made thick in the radial direction of the shaft part 5 across the full width of the protruding direction, and the inner surface thereof is made as a locking surface 7'.

[Operation]

The clip for mounting a panel and the like of the above configuration operates as follows. The female member B is engaged with a screw thread surface of a stud D protruding from the body C of a vehicle and the like owing to the locking piece 7. The female member A, the shaft part 2 thereof being inserted into the shaft part 5 of the female member B, is engaged with the female member B by the circumferential protrusion 3 contacting with the locking claw 8 of the female member B and forcing outwardly a narrow portion of the peripheral wall of the shaft part 5 between the window 6 and the shaft end 5' to elastically deform the shaft part 5 of the female member B into an elliptical shape, thereby the circumferential protrusion 3 being inserted beyond the locking claw 8 into the flange 4 side of the locking claw 8 and engaged with the locking claw 8.

[Embodiment]

An embodiment of the clip for mounting a panel and the like according to the present device will be described below using the drawings.

The clip consists of the male member A and the female member B made of synthetic resin, where the male member A has the cylindrical shaft part 2 integrally disposed on one surface of the flange part 1, and the circumferential protrusion 3 disposed on the outer periphery of the shaft end. A flange 1 side surface of the protrusion 3 is a locking

surface 3a provided in the direction perpendicular to the shaft part 2, while the other surface on the shaft end is an inclined surface 3b inclining gradually away from the shaft end.

Additionally, protruding ribs 2a and 2a are disposed opposing to each other at the joint between the shaft part 2 and the flange part 1 across the axis line of the shaft part 2.

The female member B, on one end of the cylindrical shaft part 5 receiving the shaft part 2 of the male member A, has the plate-shaped flange part 4 with a protruding edge 4a disposed circumferentially on the periphery of one surface, integrally disposed with the shaft part 5 having the protruding edge 4a on the opposite side of the shaft part 5. The shaft part 5 has an opening passing through the flange part 4.

The shaft part 5 of the female member B has the square windows 6 and 6 disposed opposing to each other across the axis line of the shaft part 5, and the locking piece 7 is provided within the window 6 from the edge of the window of the flange part 4 side toward the edge of the window of the shaft end 5' side. The locking piece 7 is made thick across the full width of the protruding direction and formed as a protrusion in the radial direction of the shaft part 5, while the inner surface of the thick portion of the locking piece 7 is made as a locking surface 7' having a plurality of ridge parts forming the screw threads.

Additionally, the shaft part 5 has protruding pieces 9

inclining from the flange part 4 side toward the center of the axis at the opposing positions perpendicular to the opposing direction of the pair of the windows 6.

Furthermore, the locking claw 8 engaging with the circumferential protrusion 3 of the male member is disposed on the inner surface of the edge portion of the window 6 of the shaft end 5' side. A flange 4 side surface is a locking surface 8a provided in the direction perpendicular to the shaft part 5, while a shaft end 5' side surface is an inclined surface 8b inclining gradually away from the shaft end 5'.

10 is a protrusion disposed on the shaft end 5' protruding in the axis line direction to act, together with the rib 2a of the male member A, for preventing the relative rotation of the female member B and the male member A, as well as leading the insertion of the male member A and absorbing the variation in thickness of the panel P and the like.

The female member B of the clip thus configured is first inserted into a hole opened on the panel P made of soundproof material and the like from one side of the panel P, and the male member B is then inserted into the shaft part 2 from the other side, thereby the shaft part 2 of the male member A is inserted into the shaft part 5 of the female member B within the hole. The circumferential protrusion 3 on the shaft end of the inserted shaft part 2 contacts with the locking claw 8 disposed on the inner surface of the shaft part 5, and thus the inclined surface 8b of the locking claw 8 and the inclined surface 3b of the circumferential protrusion 3 contact with

each other. Furthermore, by being pressed into the shaft part 2, the shaft part 2 forces outwardly a narrow portion of the peripheral wall of the shaft part 5 between the shaft end 5' and the window 6 to deform the peripheral wall of the shaft part 5 into an elliptical shape, thereby the circumferential protrusion 3 is inserted beyond the locking claw 8. Since the peripheral wall of the shaft part 5 is not provided with a slit dividing the peripheral wall and thus has a strong restorative force, the shape of the wall is immediately restored to the perfect circle after the circumferential protrusion 3 of the shaft part 2 is passed through the locking claw 8, and the locking surface 3a of the circumferential protrusion 3 is opposed to and engaged with the locking surface 8a of the locking claw 8, resulting the flange parts 1 and 4 securely supporting the both sides of the panel P.

Additionally, since the shaft part 2 of the male member A is not provided with a slit in the axis line direction as well, it is hardly deformed and thus retains the cylindrical shape.

Next, the panel P with the clip thus mounted is roughly guided to the stud bolt D protruding from the car body C and the like using the circumferential protruding edge 4a disposed on the flange part 4 of the female member B to direct the shaft part 5 to the stud bolt D for receiving the bolt D. Since the shaft part 2 retains the cylindrical shape as described above, the stud bolt D is easily inserted into the shaft part 2. The stud bolt D is positioned at the center of the shaft part 5 by the locking pieces 7 and 7 and the

protruding pieces 9 and 9, thereby the plurality of ridge parts forming the screw threads disposed on the locking surfaces 7' of the locking pieces 7 and 7 and the screw threads of the stud bolt D are engaged with each other and brought into press contact in the radial direction by a broad contact surface, resulting in being securely engaged and retained.

Furthermore, by making the circumferential protrusion 3 disposed on the shaft part 2 of the male member A closely fit between the locking piece 7 and the locking claw 8 of the shaft part 5 of the female member B, the clip will not be deformed even when being pressed from the flange part 1 side of the male member A, and, even when the force such as rolling up the panel P acts against the flange part 1, the male member A and the female member B will retain the unity without falling off from each other.

[Effect]

The clip for mounting a panel and the like according to the present device is configured as described above, the shaft part is hard to be deformed without being provided with a slit and the like in the longitudinal direction on the shaft part of the male member. Therefore, it is easily engaged with the stud bolt protruding on the surface of the car body and the like.

Additionally, the locking claw of the female member for locking the male member by engaging with the circumferential

protrusion disposed on the outer periphery of the shaft end of the male member is disposed on the inner surface of the narrow portion of the peripheral wall between the window and the shaft end. Therefore, when the shaft part of the male member is inserted into the shaft part of the female member, the cross section of the shaft part of the female member is deformed into an elliptical shape by the peripheral wall portion being elastically deformed to have the circumferential protrusion pass through, and then, after the circumferential protrusion is passed through, the shaft part is restored to a cylindrical shape by the restorative force and by the contact with the outer periphery of the shaft part of the male member. Thus, the locking piece and the circumferential protrusion are securely engaged with each other preventing the male member to be falling off.

Moreover, since the female member is provided with the locking piece protruding in the radial direction for engaging with the stud bolt by a broad press contact surface, the female member has a strong engaging force to the stud bolt.

Furthermore, as shown in the embodiment by providing the circumferential protruding edge on the periphery of the surface of the flange part of the female member opposing to the shaft part side, upon mounting of the panel, the clip can be first attached to the hole of the panel from both sides, and then the protruding edge can be used as a guide for inserting the stud bolt of the car body, thereby a panel assembling operation in a vehicle assembly line becomes easier.

4. Brief Description of the Drawings

Fig. 1 is a perspective view of an embodiment of a clip for mounting a panel and the like according to the present device; Figs. 2, 3, and 4 are a front view, a cross-sectional view, and a bottom view of a male member, respectively; Fig. 5 is a front view of a female member with a cut-away portion; Fig. 6 is a cross-sectional view of the female member taken along the line X-X; Fig. 7 is a bottom view of the female member; Fig. 8 is a cross-sectional view of the clip in use; Fig. 9 is a cross-sectional view of a substantial part showing the state where a shaft part of the male member is inserted into a shaft part of a female member; and, Fig. 10 is a perspective view of an example of the prior art.

- A male member
- B female member
- 1 flange part
- 2 shaft part
- 3 circumferential protrusion
- 4 flange part
- 5 shaft part
- 6 window
- 7 locking piece
- 8 locking claw

公開実用平成 3-57511

⑩ 日本国特許庁(JP)

⑪ 実用新案出願公開

⑫ 公開実用新案公報(U) 平3-57511

⑬ Int.Cl.⁵
F 16 B 19/00

識別記号 庁内整理番号
M 6916-3J

⑭ 公開 平成3年(1991)6月3日

審査請求 有 請求項の数 2 (全 頁)

⑮ 考案の名称 パネル等の取付用クリップ

⑯ 実 願 平1-118294

⑰ 出 願 平1(1989)10月11日

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明 細 書

1. 考案の名称

パネル等の取付用クリップ

2. 実用新案登録請求の範囲

1. 鏝部の一つの面に筒状の軸部が該鏝部と一体に設けられている雄具と、該雄具の軸部が挿入される筒状の軸部の一端に鏝部が一体に設けられている雌具とからなり、

前記雄具の軸端の外周面には周回状突部が設けられており、前記雌具の軸部に設けられた窓には該窓の鏝部側の窓縁から軸端側の窓縁に向けて係止片が突設されていると共に、該係止片が半径方向に突出し状とされ、前記窓と軸端との間の軸部内周面には前記雄具の周回状突部に係止する係止爪が突設されていることを特徴とするパネル等の取付用クリップ。

2. 窓内に設けられた係止片が突設方向の前幅に互って軸部の半径方向に肉厚とされ、内側が係止面とされていることを特徴とする請求

項 1 記載のパネル等の取付用クリップ。

3. 考案の詳細な説明

[産業上の利用分野]

本考案は防音用のマットやパネルを自動車等の車体に取付けるためのクリップに関するものである。

[従来技術]

従来自動車等の車体に防音用のパネルを取付けるために実開平 1-78710 号にかかるクリップが提供されている。

このクリップは自動車等のボデーから突出したスタッドボルトを嵌入し得る筒状の軸部 101 の一端にパネル材表面の押え用フランジ 102 を備えた第一部品 A' と、この第 1 部品 A' の軸部 101 に外挿状態で嵌合し得るスペーサ用の軸部 105 の一端にパネル材裏面の押え用フランジ 106 を備えた第 2 部品 B' とからなり、前記両軸部 101、105 の嵌合側の端部には互いに係合する抜止用の係止部 103、107 を設けたクリップであって、前記第 1 部品

A' の軸部 101 は前記スタッドボルトをほぼ密に嵌入し得る内径に形成すると共にその周壁部には縦向きのスリット 104 を設けて軸部 101 の径が弾性的に縮小し得るようにし、又前記第 2 部品 B' の軸部 105 における押え用フランジ 106 を設けた側の端部にはスタッドボルトに係合する抜止用の係止部 108 を設けた構成となっており、第 2 部品の軸部 105 のフランジ 106 側に設けた係止部 108 によりスタッドボルトのねじ部に第 2 部品 B' を係止させ、この第 1 部品 A' と第 2 部品 B' の両軸部 101、105 に設けた係止部 103 と 107 とが互に係止して第 1 部品 A' と第 2 部品 B' とが抜けなくなるようになっている。

[考案が解決しようとする課題]

しかしながら上記のクリップは第 1 部品 A' の軸部 101 をスリット 104 によって内方に撓ませてその径を縮小し、第 2 部品 B' の軸部 105 内に挿入するので弾性復帰時に係止部 103 が完全に復帰しない場合があり、その

場合は係止部103 と107 との係合が不充分であると共に軸部101 がスタッドボルトに嵌まり難くなる。

又、スタッドボルトに当る時にボルトの先端に当って軸部101 が拡がり易いようにしておくと係合力が不足する等の問題点があった。

本考案は上記の問題点を解決し、一对の雌雄をなす部品間の係合が確実に行われるようにしたクリップの提供を目的としている。

[課題を解決するための手段]

本考案は上記の目的を達成するためにパネル等の取付用クリップを鍔部1 の一つの面に筒状の軸部2 が該鍔部1 と一体に設けられている雄具Aと、該雄具Aの軸部2 が挿入される筒状の軸部5 の一端に鍔部4 が一体に設けられている雌具Bとからなり、前記雄具Aの軸端の外周面には周回状突部3 が設けられており、前記雌具Bの軸部5 には窓6 が設けられて該窓6 内に鍔部4 側の窓縁から軸端5

側の窓縁に向けて係止片 7 が突設されていると共に、該係止片 7 が半径方向に突出し状とされ、前記窓 6 と軸端 5' との間の軸部 5 内周面には前記雄具 A の周回状突部 3 を係止する係止爪 8 が突設されている構成としたものであり、又更に窓 6 内に設けられた係止片 7 が突設方向の全幅に亘って軸部 5 の半径方向に肉厚とされ、内側が係止面 7' とされている構成とする場合もある。

[作用]

上記の構成とされたパネル等の取付用クリップは雌具 B が自動車等の車体 C から突出しているスタッド D のねじ山面に係止片 7 により係止され、この雌具 B の軸部 5 に軸部 2 を挿入される雌具 A は周回状の突部 3 が雌具 B の係止爪 8 に当接することにより軸部 5 に設けられた窓 6 と軸端 5' との間の周壁の狭小部分を外側へ押出すようにして雌具 B の軸部 5 を楕円形に弾性変形させ、周回状突部 3 が係止爪 8 を越えて係止爪 8 の鏝部 4 側に入

り、周回状突部 3 と互に係合して雌具 B に雄具 A を係止する。

〔実施例〕

以下本考案にかかるパネル等の取付用クリップの一実施例について図面により説明する。

このクリップは合成樹脂製の雄具 A と雌具 B とからなっており、雄具 A は鏝部 1 の一方の面に筒状の軸部 2 が一体に設けられており、軸端には外周面に周回状突部 3 が設けられ、この突部 3 の鏝部 1 側の面が軸部 2 と直交方向に係止面 3a となっており、軸端側の面は軸端から漸次離れるように傾斜する傾斜面 3b となっている。

又、軸部 2 の鏝部 1 との接合部の軸線を挟んで対向する位置に突起状のリブ 2a、2a が設けられている。

前記雌具 B は前記雄具 A の軸部 2 が挿入される筒状の軸部 5 の一端に、一方の面の周縁部に周回状の突出縁 4a を設けた皿状の鏝部 4

が突出縁4aを軸部5と反対側にして一体に設けられており、軸部5は鏝部4を貫通した内孔を有する。

この雌具Bの軸部5には軸線を挟んで対向する位置に方形の窓6、6が設けられ、この窓6の鏝部4側の窓縁から軸端5'側の窓縁に向けて係止片7が突設されている。この係止片7は突設方向の全幅に亘って肉厚とされ、軸部5の半径方向に突出し状とされており、この係止片7の肉厚部の内面はねじ山状の複数の突条部が設けられた係止面7'とされている。

更に軸部5には前記一对の窓6の対向方向と直交する方向の位置に、鏝部4側から軸心方向に向けて傾斜する突片9が設けられている。

又、前記窓6の軸端5'側の窓縁部内周面には前記雄具の周回状突部3と係合する係止爪8が設けられ、鏝部4側の面が軸部5に直交する方向の係止面8aとなっており、軸端

5'側の面は軸端5'から漸次離れるように傾斜する傾斜面8bとなっている。

10は軸端5'に軸線方向に突出された突起であり、前記雄具Aのリブ2aとにより、雌具Bと雄具Aとの相体的な回転を防止すると共に雄具Aの嵌め合せの誘いとパネルP等の厚さのバラツキを吸収するものである。

このように構成されたクリップは先ず防音材等のパネルP面にあけた穴に雌具BをパネルPの一方の面から挿込み、他方の面から雄具Bの軸部2を挿込むと穴内で雄具Aの軸部2は雌具Bの軸部5に挿入される。挿入された軸部2の軸端の周回状突部3は軸部5の内周面に設けられている係止爪8と当接し、係止爪8の傾斜面8bと周回状突部3の傾斜面3bとが当接する。更に軸部2が押込まれることにより軸端5'と窓6間の狭小な周壁部分を外方に押出して、軸部5の周壁を楕円状に変形させるので周回状突部3が係止爪8を越える。ここで軸部5の周壁は周壁を分断するス

リット等がないので周壁の復原力が強く、直に真円状に復帰し、軸部 2 の周回状突部 3 が通過後は周回状突部 3 の係止面 3a は係止爪 8 の係止面 8a と対向して係合し、パネル P は両面を鰐部 1 と 4 とで確実に挟持される。

又、雄具 A の軸部 2 も軸線方向のスリット等がないため変形し難く、円筒形状を保持する。

次にこのようにクリップの取付けられたパネル P を雌具 B の鰐部 4 に設けられている周回状の突出縁 4a により車体 C 等に突出しているスタッドボルト D へ概略の案内を行い、軸部 5 をスタッドボルト D に誘導して挿入すると軸部 2 が上記のように円筒形状を保持しているためスタッドボルト D が軸部 2 内へ入りやすく、軸部 5 はスタッドボルト D を係止片 7、7 及び突片 9、9 により軸部 5 の中心に位置させて係止片 7、7 の係止面 7' に設けられた複数のねじ山状の突条部がボルト D のねじ山間に係入し、大きい接触面で半径方向

に圧接するため確実に係止及び保持がなされる。

更に又、クリップを雄具 A の軸部 2 に設けられた周回状突部 3 が雌具 B の軸部 5 の係止片 7 と係止爪 8 間に密に収まるようにすれば、雄具 A の鏝部 1 側から押圧されてもクリップは変形せず、又、パネル P を捲り上げるような力が鏝部 1 に作用しても雄具 A と雌具 B とは一体状を保ち、抜け出すことがない。

[効果]

本考案にかゝるパネル等の取付用クリップは以上のように構成されており、雄具の軸部には長さ方向のスリット等が設けられておらず軸部が変形し難いので、車体等の面に突出しているスタッドボルトに嵌挿することが容易である。

又、この雄具の軸端の外周面に設けた周回状突部と係合して雄具を係止する雌具の係止爪も、窓と軸端との間の狭小な周壁部分の内周面に設けられているので、この軸部内に雄

具の軸部を挿入した時に、前記の周壁部分の弾性変形により軸部が楕円状の断面形状に変形して周回状突部を通過させ、通過後は復原力と挿入された雄具の軸部の外周面との接触とにより円筒状に復帰するので、係止片と周回状突部との係合が確実に行われ、雄具の拔出しが防止される。

又、雌具には半径方向に突出し状とされ、大きい圧接係止面でスタッドボルトに係止する係止片が設けられているのでスタッドボルトへの係止力が強い。

又、実施例のように雌具の鍔部の軸部と反対側の面の周縁に周回状の突出縁を設けると、パネル取付時に先ずパネルの両面から穴にクリップを装着しておき、前記突出縁を車体のスタッドボルトへの挿入の案内とすることができるので自動車の組付ラインでのパネル組付作業が容易となる。

4. 図面の簡単な説明

第1図は本考案にかゝるパネル等の取付用

クリップの一実施例の斜視図、第2図は雄具の正面図、第3図は同断面図、第4図は同底面図、第5図は雌具の一部切欠して示す正面図、第6図は同X—X線断面図、第7図は同底面図、第8図はクリップの使用状態を示す断面図、第9図は雄具の軸部を雌具の軸部へ挿入時の状態を示す要部断面図、第10図は従来例の斜視図である。

A … 雄具、B … 雌具、1 … 鍔部、2 … 軸部、3 … 周回状突部、4 … 鍔部、5 … 軸部、6 … 窓、7 … 係止片、8 … 係止爪。

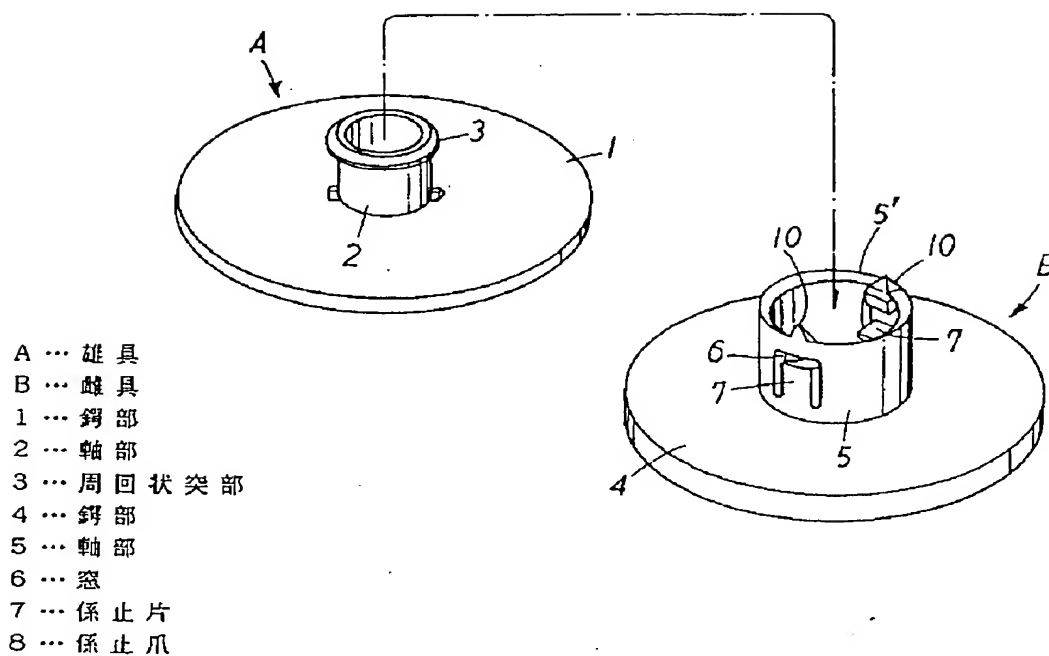
実用新案登録出願人

株式会社 ニ フ コ

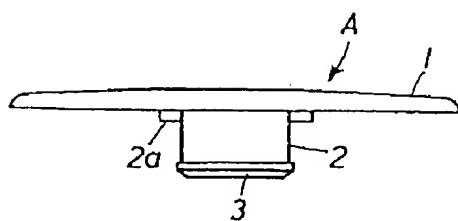
代理人弁理士

桑 原 稔

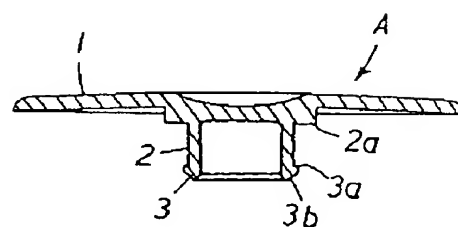
第 1 図



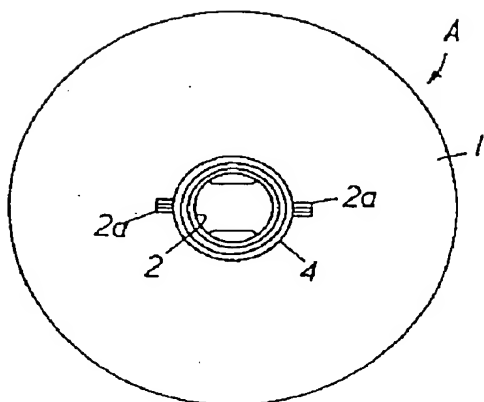
第 2 図



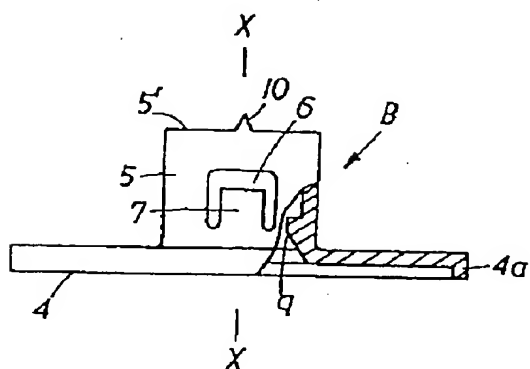
第 3 図



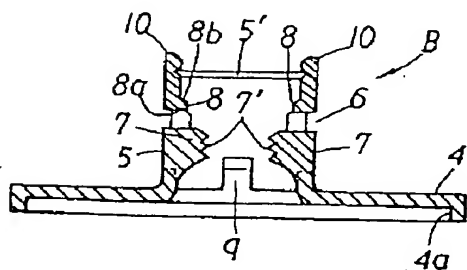
第 4 図



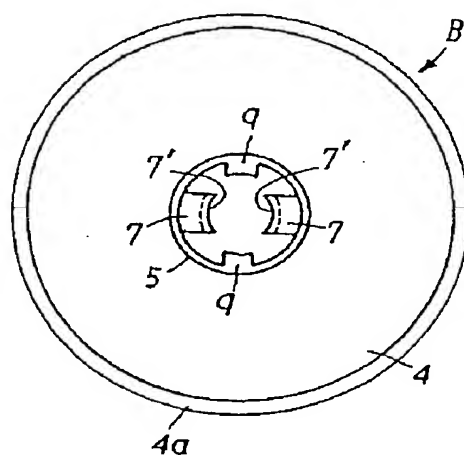
第 5 図



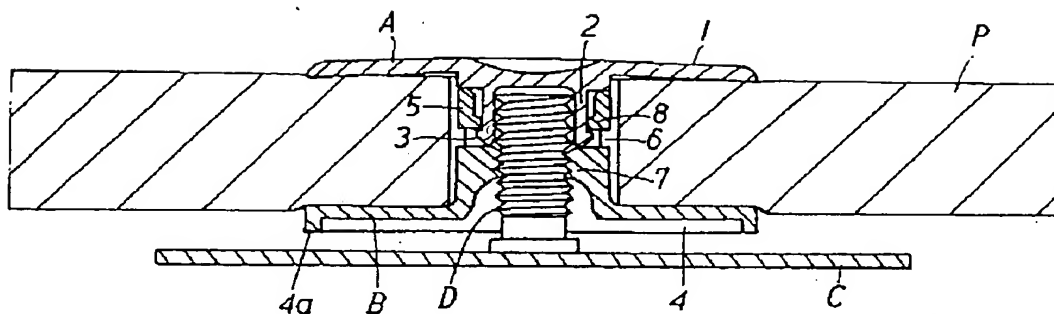
第 6 図



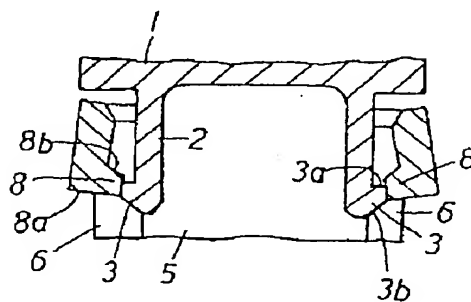
第 7 図



第 8 図



第 9 図



第 10 図

